



Case #4: shows level 6 LN station positive in both the CT scan but on the ADC image, the mean value 2.01 indicating non malignant involvement (?? Inflammatory)

Results: The main result was the reduction in primary and nodal volumes due to better definition of lung mass and nearby lung Collapse, the latter could be easily defined in 14 cases on the DW-MRI vs. 7 cases only by CT scans ($P=0.016$). Median GTV total (sum of 1ry and nodal GTV), on MRI Diffusion compared to that on the CT scan was 354 and 386 cm³ respectively ($P=0.009$). In 15 cases, a mean decrease in the GTV total of $34\% \pm 56\%$ (median, 9%; range, 0.2- 32.5%) by using DW-MRI. only in three other cases a mean increase in the GTV total of $12.7\% \pm 14.9\%$ (median, 9.7%; range, 0.4- 221%). was found. The median PTVs on the CT scans vs. the MRI Diffusion were 1623 (range, 493-2965 cm³) & 1419 (range, 542-3158 cm³) respectively which was statistically non significant ($P=0.391$).

Conclusion: This pilot prospective study concluded that DW-MRI as a functional image can aid in proper definition and delineation of the target volumes after fusion of DWI and the CT images. GTV Total decreased in most cases due to exclusion of collapse, consolidation, reactionary and inflammatory LN, however GTV total was increased in 3/20 patients due to better nodal detection and better visualization of borders adjacent to the mediastinum and chest wall. DW MRI could be a future good tool for proper staging and guidance of radiotherapy in NSCLC cases indicated for chemo/radiation.

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Postoperative hypofractionated radiotherapy of non-small cell lung cancer: pattern of the relapses

V.M. Sotnikov¹, V.A. Solodkiy¹, V.M. Kcharchenko¹, G.A. Panshin¹, V.D. Chhikvadze², S.D. Trocenko¹, A.A. Morgunov³

¹Russian Scientific Center of Roentgenoradiology, Radiation Therapy, Moscow, Russian Federation

²Russian Scientific Center of Roentgenoradiology, Surgery, Moscow, Russian Federation

³Russian Scientific Center of Roentgenoradiology, Scientific, Moscow, Russian Federation

Purpose or Objective: Purpose: The aim of this work was to compare the patterns of NSCLC relapses after combined modality therapy with postoperative hypofractionated and conventionally fractionated radiotherapy and after surgery

Material and Methods: Material/methods. We treated 528 patients between January 1990 and January 2014 (men - 445, women - 83) aged 27-78 years (median age 59) with morphologically proven NSCLC (adenocarcinoma - 161, squamous cell cancer- 289, other types - 70 patients); stage I-126, stage II - 117, III - 111. All patients were operated: pneumonectomy -180, lobe/belobectomy - 304, segmentectomy - 30, wedge resection -11. 227 patients received neoadjuvant or adjuvant platinum-based chemotherapy. Three groups were retrospectively analyzed: group I - 174 patients without postoperative radiotherapy (PORT), group II - 180 patients with postoperative hypofractionated radiotherapy with daily dose 3Gy up to the total dose 36Gy-39Gy (EQD2=43-47Gy, $\alpha/\beta=3$) and group III - 174 patients with postoperative radiotherapy with daily dose 2Gy up to the total dose 44Gy. Bronchial stump, involved regional lymphatic nodes and uninvolved groups (2R, 2L, 3a, 3p, 4R, 4L, 5, 6, 7 according to IASLC classification) were included in the CTV. The groups were comparable in the following parameters: age, ECOG status, stage, T- and N -

classification and the proportion of the patients treated with chemotherapy. The duration of the follow-up was 0,33-16,0 years, median - 2,25 years. The relapses were classified as local (in bronchial stump), regional, or distant. In the cases of mixt relapses (local \pm regional \pm distant) they were included in each category.

Results: Results. 263(49,8%) patients relapsed: 231 (43,8%) had distant metastases, local relapse - 51 (9,7%), regional relapse - 54 (10,2%). The pattern of the relapses in each group is presented in the table.

Category of the relapse	Group I	Group II	Group III	P (two-sided test)
Local	33 (19,0%)*	10 (5,6%)*	8 (4,6%)	*0,0001
Regional	38 (21,8%)*	8 (4,4%)*	8 (4,6%)	*0,0000
All locoregional	55 (31,6%)*	13 (7,6%)*	12 (6,9%)	*0,0000
Distant only	49 (28,2%)*	66(36,7%)*	68(39,0%)	*0,0924
All distant	81 (46,6%)*	74 (41,1%)*	76 (43,7%)	*0,2978
Relapsed patients	104(59,8%)*	79(43,9%)*	80(46,0%)	*0,0042

Conclusion: Conclusion. Hypofractionated postoperative radiotherapy (daily dose 3Gy, total dose 36-39Gy) significantly decrease the probability of local and regional relapse in NSCLC patients as well as the total number of the relapses without any effect with regard to distant metastases. Hypofractionated PORT is equally effective as conventional PORT (daily dose 2Gy, total dose 44Gy) with regard to locoregional control but has the clear logistical advantage.

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Accelerated hypofractionated three-dimensional conformal radiation therapy (AHRT) for NSCLC

N. Rodriguez de Dios^{1,2,3}, X. Sanz^{1,2,3}, P. Foro^{1,2,3}, A. Reig^{1,2}, I. Membrive^{1,2}, A. Ortiz¹, J. Quera^{1,2,3}, E. Fernández-Velilla^{1,2}, O. Pera^{1,2}, M. Algara^{1,2,3}

¹Hospital de la Esperanza, Department of Radiation Oncology, Barcelona, Spain

²Hospital del Mar Medical Research Institute IMIM, Oncology, Barcelona, Spain

³Pompeu Fabra University UPF, Department of Experimental and Health Sciences, Barcelona, Spain

Purpose or Objective: Increasing the radiotherapy dose can result in improved local control for non-small-cell lung cancer (NSCLC) and can thereby improve survival. This can be compromised by accelerated repopulation of tumour cells during radiotherapy. Accelerated hypofractionated radiotherapy (AHRT) can expose tumors to a high dose of radiation in a short period of time. We have employed this approach in two groups of NSCLC: 1) early stage NSCLC patients who cannot tolerate the SABR treatment process (for example, extended periods in the treatment position) or who cannot travel to a centre with SABR; and 2) stage III NSCLC unfit for concurrent chemotherapy.

This study was performed to evaluate the feasibility of utilizing AHRT for these patients.

Material and Methods: 76 patients (46 stage I-II and 30 local advanced NSCLC) were included. All patients had FDG-PET scan. Only the primary tumour and the positive mediastinal areas on the pre-treatment FDG-PET scan were irradiated. Mean age was 77.9 ± 7.9 years. The performance status (PS) was > 2 in 50% of cases. The radiotherapy was delivered in 2.75 Gy fractions, once daily to a total dose of 66 Gy (BED10: 84 Gy). Sequential chemotherapy (mainly platinum and vinorelbine) was administered in 95% of stage III patients. Acute/late toxicity was evaluated using the RTOG criteria.

Results: After a mean follow-up of 2 years, the median overall survival (OS) and cause specific survival (CSS) were 23 and 54 months, respectively. On multivariate Cox regression analysis, PS >2 was an independent risk factor for OS ($p<0.0001$) and CSS ($p<0.0001$). The major acute adverse reactions were grade 2 dermatitis (18%), grade 2 esophagitis (10%) and grade 1 pneumonitis (26%). There were 34 patients with grade 1 late pneumonitis.